USDA Foreign Agricultural Service

Iran: Crop Progress Report

MY 2009/10

April Summary **April 28, 2009**

(1) Iran's wheat and barley production in MY 2009/10 is currently forecast to increase over last year's severely drought-reduced harvest, but is expected to remain below the 5-year average. This projection is supported by season-to-date precipitation conditions and satellite-derived (MODIS NDVI) vegetation index time series data. Major grain-producing provinces in the northwest and northeast received much improved rainfall throughout the growing season this year and are currently showing near-normal crop vegetation development. Major rainfed provinces in the northwest region that account for nearly 24% of national wheat and 21% of barley are expected rebound from last years drought losses and produce a normal crop this season. Major producing areas in the northeastern provinces of Golestan and Khoresan (17% of wheat and 22% of barley) are also showing similar improvements in crop vigor. However, important provinces in the southwest including Khuzestan, Esfahan and Fars (28% of wheat and 18% of Barley) have received well-below normal rainfall and are showing much lower vegetation than normal and last year. In addition to insufficient rainfall, it appears that seriously declining irrigation supplies in this region are affecting sown area and crop yields

(2) Season-to-date rainfall has been much improved compared to last year over the majority of the country, benefitting both rainfed and irrigated winter grain crops. However, much below normal rainfall conditions have plagued key grains regions for the second year, particularly in south and central regions of the country (Figure 1). Currently 38% of winter grains area in Iran (40% of wheat and 31% of barley) has received below normal precipitation. Many of these regions (>70%) are at least partially irrigated and have potential to produce some winter grains, though total production is expected to be well-below normal. Satellite imagery provides some indication that the sustained drought situation is taking a toll on reservoir water levels in Fars province, but it is unknown how dramatic and widespread this issue is across the remainder of Iran. Recent precipitation events in April have favored the eastern portion of the country as well as the drought-plagued provinces of Fars and Bushehr. However, while these showers have been welcome, they arrived too late in the growing season to be of much help to grain crops. Despite the rain, most fields in this region continue to show poor production potential and/or complete crop failure due to insufficient moisture during the growing season.

(3) The unseasonably warm temperatures that Iran has experienced over the past few winter months gave way to more normal and seasonably cooler temperatures in April (Figure 3). Persistently warm temperatures in late winter and early spring resulted in a complete loss of the accumulated winter snowpack from all but the highest mountain peaks. The earlier than normal snow melt this year, though not directly correlated with crop health and productivity during the growing season, could potentially eliminate a source of irrigation to crops in lowland areas. The primary concern would be in case of deficient spring rainfall and drought, rivers and aquifers that draw water from the highlands into mountain valleys would experience much-reduced water flow.

(4) MODIS NDVI vegetation index values compared to last year over Iran indicate mixed conditions, showing both large-scale decreases and increases in crop vegetation and grain production potential. Significant declines in crop vegetation are particularly evident in the southern provinces of Khuzestan Esfahan and Fars, which account for 28% of national wheat and 18% of barley production. Large increases in crop vegetation are evident in provinces like Kermanshah, Kurdistan, West Azarbaijan, and Golestan, which account for 22% of wheat and 14% of barley production (Figure 5).

(5) Figure 6 displays the degree to which favorable rainfall in provinces in the northwest, northeast, and along the Caspian Sea has resulted in a huge increase in crop vegetation and grain production potential over MY 2008/09 levels. Significant increases in vegetation vigor in these regions indicate a return to normal or near-normal production levels. The Northwest provinces of Kermanshah, Lorestan, Markazi, Hamedan Kordestan, and Zanjan cumulatively account for 25% of national wheat production and 26% of barley (26% of total grains). North-central and northeastern provinces of Tehran, Mazandaran, Golestan, North Khorasan and Razavi Khorasan cumulatively account for 20% of wheat and 27% of barley (21% of total grains). A similar comparison to the previous 8 years NDVI average show similar trends and indicate that these regions are performing at normal to slightly better than normal levels. High resolution imagery in figure 10 shows that even in regions with ample rainfall this year, there is a large difference in crop development and potential grain yields between purely rainfed crop fields and irrigated fields.

(6) Figure 11 highlights those areas that have continued to be affected by drought conditions for the second consecutive year and have thus experienced a significant decline in crop area and vegetation vigor from both the average for the region as well as from last year (MY 2008/09). The provinces most dramatically affected by continued drought, Khuzestan, Ilam, Esfahan, Fars and Bushehr, historically account for 29% of national wheat production and 21% of barley (28% of total grains). Landsat imagery comparing a major irrigated grains region in Fars province from March of this year to the same period in 2007 indicates a major loss in reservoir water levels and irrigation potential (Figure 14). The lack of irrigation supply or rationing of the declining water resource has resulted in large expanses of unplanted or failed grain fields. This indicates that the low NDVI values over these areas represent poor crop health and low yield potential as well as a loss of harvestable area compared to last year and to normal levels achieved in previous years.

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Commodity	Attribute	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	**2009/2010 (Projected)**
Barley	Area Harvested (1000 HA)	1600	1659	1700	1700	1300	**1407**
	Production (1000 MT)	2940	2857	3000	3000	2000	**2621**
	Yield (MT/HA)	1.84	1.72	1.76	1.76	1.54	**1.86**
Wheat	Area Harvested (1000 HA)	6605	6951	6500	6900	5850	**5929**
	Production (1000 MT)	14568	14308	14500	15000	10000	**12004**
	Yield (MT/HA)	2.21	2.06	2.23	2.17	1.71	**2.02**

Table 1. Projected national barley and wheat statistics for MY 2009/10 compared against previous years.

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International Operational Agriculture Monitoring Program

Iran: Historical Wheat Statistics

	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Northwest	**Azarbayejan Sharghi**										
	Area (Mha)	0.42	0.41	0.43	0.43	0.45	0.44	-	0.43	0.43	-1.16%
	Yield (MT/ha)	1.03	1.17	1.50	1.59	1.63	1.67	-	1.70	1.43	18.63%
	Production (MMT)	0.43	0.48	0.64	0.69	0.74	0.74	-	0.73	0.62	17.25%
	Azarbayejan Gharbi										
	Area	0.30	0.31	0.33	0.33	0.34	0.40	-	0.33	0.34	-3.00%
	Yield	1.33	1.47	1.92	2.14	2.30	1.75	-	2.35	1.82	29.25%
	Production	0.40	0.45	0.63	0.70	0.77	0.70	-	0.78	0.62	25.37%
	Ardabil										
	Area	0.27	0.29	0.32	0.35	0.36	0.36	-	0.31	0.34	-6.40%
	Yield	1.34	1.49	1.70	1.88	1.70	1.68	-	1.85	1.63	13.28%
	Production	0.36	0.43	0.54	0.65	0.61	0.61	-	0.58	0.55	6.04%
	Gilan										
	Area	0.02	0.02	0.02	0.01	0.02	0.01	-	0.01	0.02	-5.17%
	Yield	0.68	0.91	0.98	1.06	1.02	1.04	-	1.05	0.95	10.86%
	Production	0.01	0.02	0.01	0.02	0.02	0.01	-	0.02	0.01	5.13%
	Zanjan										
	Area	0.32	0.29	0.41	0.35	0.31	0.30	-	0.32	0.33	-4.41%
	Yield	0.64	0.63	0.61	1.09	1.22	1.21	-	1.22	0.90	35.79%
	Production	0.20	0.19	0.25	0.38	0.38	0.37	-	0.39	0.30	29.80%
	Kordestan										
	Area	0.42	0.40	0.42	0.43	0.47	0.52	-	0.48	0.45	7.03%
	Yield	0.73	0.76	0.94	1.29	1.48	1.20	-	1.40	1.07	31.17%
	Production	0.30	0.30	0.40	0.55	0.69	0.63	-	0.67	0.48	40.40%
	Ghazvin										
	Area	0.10	0.12	0.12	0.14	0.13	0.17	-	0.16	0.13	17.46%
	Yield	1.93	2.20	2.35	2.15	2.55	2.13	-	2.45	2.22	10.53%
	Production	0.20	0.26	0.27	0.29	0.33	0.35	-	0.39	0.30	29.84%
	Markazi										
	Area	0.18	0.20	0.21	0.21	0.23	0.22	-	0.21	0.21	-3.00%
	Yield	1.10	1.57	1.63	1.81	2.11	1.69	-	1.90	1.65	15.11%
	Production	0.19	0.32	0.34	0.38	0.48	0.37	-	0.39	0.35	11.66%
	Hamedan										
	Area	0.38	0.37	0.40	0.40	0.44	0.44	-	0.41	0.41	0.92%
	Yield	1.03	1.54	1.68	1.73	2.05	1.49	-	1.95	1.59	22.66%
	Production	0.39	0.58	0.67	0.70	0.89	0.66	-	0.81	0.65	23.80%
	Kermanshah										
	Area	0.29	0.34	0.39	0.39	0.43	0.42	-	0.42	0.39	5.38%
	Yield	1.00	1.49	2.07	2.05	2.05	2.11	-	2.10	1.79	17.01%
	Production	0.29	0.51	0.80	0.80	0.89	0.89	-	0.87	0.71	23.30%
	Ilam										
	Area	0.09	0.11	0.12	0.10	0.12	0.13	-	0.11	0.12	-4.77%
	Yield	1.05	1.60	1.93	1.35	1.59	1.81	-	1.20	1.55	-22.79%
	Production	0.09	0.18	0.24	0.14	0.19	0.24	-	0.13	0.18	-26.48%
	Lorestan										
	Area	0.26	0.25	0.30	0.31	0.34	0.34	-	0.24	0.31	-22.66%
	Yield	1.38	1.41	2.00	1.75	1.62	1.43	-	1.75	1.60	9.63%
	Production	0.36	0.35	0.59	0.54	0.56	0.48	-	0.42	0.49	-15.21%
	Khozestan										
	Area	0.36	0.48	0.58	0.42	0.50	0.60	-	0.40	0.52	-22.05%
	Yield	2.54	2.44	2.47	2.56	2.46	2.48	-	1.85	2.49	-25.74%
	Production	0.91	1.18	1.43	1.08	1.22	1.49	-	0.75	1.29	-42.12%

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	Iran: Historical Wheat Statistics Continued...									
	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Central	Golestan										
	Area	0.31	0.70	0.36	0.37	0.39	0.37	-	0.37	0.44	-14.25%
	Yield	2.68	2.10	2.44	3.06	2.85	2.76	-	3.00	2.65	13.23%
	Production	0.83	1.47	0.87	1.13	1.11	1.01	-	1.12	1.16	-2.90%
	Mazandaran										
	Area	0.05	0.07	0.06	0.06	0.07	0.06	-	0.12	0.06	89.59%
	Yield	1.32	2.12	2.43	2.19	2.43	1.35	-	2.50	1.97	26.79%
	Production	0.07	0.14	0.13	0.14	0.16	0.08	-	0.30	0.12	140.39%
	Tehran										
	Area	0.05	0.05	0.04	0.05	0.06	0.07	-	0.06	0.05	6.38%
	Yield	3.22	3.99	4.27	4.80	4.66	4.79	-	4.65	4.29	8.42%
	Production	0.16	0.19	0.19	0.22	0.26	0.32	-	0.26	0.23	15.35%
	Ghom										
	Area	0.02	0.01	0.02	0.01	0.01	0.01	-	0.02	0.01	76.21%
	Yield	2.60	3.07	3.75	4.10	4.84	3.74	-	4.28	3.68	16.11%
	Production	0.05	0.04	0.06	0.06	0.07	0.05	-	0.10	0.05	104.59%
	Semnan										
	Area	0.05	0.04	0.04	0.04	0.05	0.04	-	0.04	0.04	-2.36%
	Yield	2.66	2.68	3.16	3.27	3.21	3.28	-	3.21	3.04	5.33%
	Production	0.12	0.10	0.13	0.14	0.15	0.12	-	0.13	0.12	2.84%
	Esfahan										
	Area	0.10	0.08	0.10	0.12	0.13	0.13	-	0.11	0.11	-1.93%
	Yield	2.82	2.66	3.26	3.71	4.20	3.91	-	2.75	3.43	-19.77%
	Production	0.29	0.21	0.34	0.46	0.54	0.52	-	0.31	0.39	-21.32%
	Yazd										
	Area	0.02	0.02	0.03	0.03	0.03	0.03	-	0.03	0.03	3.75%
	Yield	2.90	3.02	3.31	3.62	3.85	3.77	-	3.26	3.41	-4.33%
	Production	0.07	0.07	0.09	0.10	0.10	0.10	-	0.09	0.09	-0.74%
	CharMahal & Bakhtiari										
	Area	0.07	0.08	0.07	0.08	0.08	0.07	-	0.08	0.08	-0.60%
	Yield	1.43	1.80	2.54	2.29	2.27	2.20	-	2.25	2.09	7.68%
	Production	0.10	0.15	0.18	0.19	0.19	0.15	-	0.17	0.16	7.02%
	Kohkiloyeh & Boyrahmad										
	Area	0.08	0.09	0.13	0.16	0.12	0.13	-	0.09	0.12	-26.35%
	Yield	1.31	1.54	2.16	1.69	1.54	1.41	-	1.44	1.61	-10.70%
	Production	0.10	0.14	0.28	0.26	0.18	0.18	-	0.13	0.20	-34.23%
	Boshehr										
	Area	0.02	0.12	0.17	0.17	0.17	0.16	-	0.16	0.16	4.48%
	Yield	1.31	0.38	0.68	0.35	0.52	0.84	-	0.65	0.68	-3.65%
	Production	0.02	0.05	0.11	0.06	0.09	0.13	-	0.11	0.11	0.66%
	Fars										
	Area	0.40	0.45	0.44	0.60	0.54	0.59	-	0.40	0.52	-23.58%
	Yield	3.00	2.92	3.86	3.10	3.67	3.51	-	2.50	3.34	-25.23%
	Production	1.19	1.32	1.70	1.85	1.98	2.07	-	1.00	1.75	-42.86%
East	khorasan razavi										
	Area	0.42	0.47	0.64	0.70	0.68	0.53	-	0.47	0.60	-22.26%
	Yield	1.62	1.70	1.97	2.17	2.19	2.12	-	2.19	1.96	11.52%
	Production	0.68	0.81	1.25	1.51	1.48	1.12	-	1.02	1.18	-13.31%
	Kerman										
	Area	0.08	0.08	0.08	0.09	0.11	0.11	-	0.08	0.09	-11.35%
	Yield	2.25	2.35	2.57	2.68	3.09	3.26	-	2.48	2.70	-8.05%
	Production	0.17	0.18	0.20	0.24	0.33	0.36	-	0.20	0.25	-18.49%
	Sistan & Baloshesta										
	Area	0.04	0.03	0.03	0.03	0.05	0.06	-	0.05	0.04	23.58%
	Yield	2.05	2.27	1.92	2.33	2.18	2.08	-	2.10	2.14	-1.67%
	Production	0.07	0.07	0.06	0.08	0.10	0.12	-	0.10	0.08	21.51%
	Hormozgan										
	Area	0.01	0.01	0.01	0.01	0.01	0.01	-	0.01	0.01	6.67%
	Yield	2.17	2.92	3.26	4.17	4.21	4.01	-	3.22	3.46	-6.84%
	Production	0.02	0.03	0.04	0.05	0.05	0.06	-	0.04	0.04	-0.63%
	Total										
	Area	5.10	5.90	6.24	6.41	6.61	6.72	-	5.93	6.38	-7.01%
	Yield	1.59	1.73	1.99	2.10	2.21	2.07	-	2.02	2.03	-0.07%
	Production (MMT)	8.09	10.20	12.45	13.44	14.57	13.93	-	12.00	12.92	-7.08%

Table 2. Provincial level wheat production estimates for MY 2009/10 compared against previous years.

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	Iran: Historical Barley Statistics				
	Province	**2000/01 2001/02 2002/03 2003/04 2004/05 2005/06 2006/07 - 2008/09**	**2009/10**	**5 Yr Avg**	**% Diff.**
Northwest	**Azarbayejan Sharghi** Area (Mha) Yield (MT/ha) Production (MMT)	0.08 0.08 0.09 0.08 0.08 0.08 -1.01 1.17 1.41 1.48 1.39 1.46 -0.08 0.09 0.13 0.12 0.11 0.12 -	0.08 1.28 0.10	0.082 1.318 0.108	-0.68% -3.19% -3.85%
	Azarbayejan Gharbi Area Yield Production	0.04 0.04 0.05 0.05 0.05 0.05 -1.61 1.49 1.71 1.74 1.80 1.48 -0.06 0.06 0.08 0.08 0.10 0.08 -	0.05 1.60 0.07	0.048 1.641 0.078	-5.46% -2.40% -7.73%
	Ardabil Area Yield Production	0.09 0.09 0.09 0.07 0.10 0.10 -1.27 1.28 1.60 1.57 1.30 1.39 -0.11 0.12 0.14 0.11 0.13 0.13 -	0.09 1.41 0.12	0.089 1.400 0.124	-3.07% 0.72% -2.36%
	Gilan Area Yield Production	0.01 0.01 0.01 0.01 0.01 0.01 -0.70 1.01 0.99 1.20 1.15 1.11 -0.01 0.01 0.01 0.01 0.01 0.01 -	0.01 1.11 0.01	0.008 1.028 0.008	-7.38% 7.96% -0.01%
	Zanjan Area Yield Production	0.03 0.04 0.11 0.06 0.06 0.05 -0.85 0.76 0.50 1.00 1.09 1.22 -0.03 0.03 0.05 0.06 0.06 0.06 -	0.06 0.98 0.05	0.062 0.905 0.056	-11.52% 8.60% -3.91%
	Kordestan Area Yield Production	0.03 0.04 0.04 0.04 0.04 0.03 -0.91 0.87 1.07 1.43 1.44 1.35 -0.03 0.04 0.05 0.05 0.05 0.05 -	0.04 1.16 0.05	0.038 1.179 0.045	4.02% -1.76% 2.19%
	Ghazvin Area Yield Production	0.02 0.03 0.04 0.04 0.03 0.03 -1.70 2.36 2.23 2.22 2.45 2.28 -0.04 0.06 0.09 0.08 0.08 0.06 -	0.04 2.51 0.09	0.032 2.206 0.071	17.53% 13.80% 33.75%
	Markazi Area Yield Production	0.03 0.05 0.04 0.04 0.04 0.04 -2.37 3.13 3.10 3.07 3.53 3.16 -0.08 0.14 0.12 0.13 0.14 0.11 -	0.04 3.75 0.15	0.040 3.060 0.124	-3.02% 22.54% 18.85%
	Hamedan Area Yield Production	0.05 0.06 0.06 0.06 0.07 0.07 -1.64 2.35 2.51 2.69 2.93 2.26 -0.09 0.14 0.14 0.16 0.20 0.15 -	0.06 2.86 0.18	0.062 2.396 0.148	-0.53% 19.33% 18.69%
	Kermanshah Area Yield Production	0.08 0.10 0.10 0.13 0.10 0.11 -0.72 1.48 1.78 1.56 1.51 1.52 -0.06 0.15 0.18 0.20 0.15 0.17 -	0.11 1.84 0.21	0.109 1.428 0.156	4.94% 28.98% 35.35%
	Ilam Area Yield Production	0.03 0.05 0.06 0.05 0.05 0.06 -0.50 1.03 1.26 0.78 0.66 1.03 -0.02 0.05 0.08 0.04 0.03 0.06 -	0.05 0.58 0.03	0.055 0.875 0.048	-6.82% -34.07% -38.56%
	Lorestan Area Yield Production	0.15 0.18 0.15 0.12 0.14 0.18 -0.93 1.24 1.61 1.06 1.05 1.12 -0.14 0.22 0.24 0.13 0.14 0.20 -	0.12 1.19 0.14	0.152 1.169 0.178	-21.31% 1.97% -19.76%
	Khozestan Area Yield Production	0.03 0.10 0.11 0.08 0.09 0.11 -1.08 0.91 1.23 1.06 0.83 0.97 -0.04 0.10 0.14 0.08 0.08 0.10 -	0.07 0.75 0.05	0.098 1.014 0.100	-26.95% -26.01% -45.95%

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Iran: Historical Barley Statistics Continued...

	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Central	Golestan										
	Area	0.07	0.06	0.06	0.05	0.07	0.06	-	0.06	0.060	-6.32%
	Yield	0.98	1.07	1.02	2.06	1.77	1.48	-	1.76	1.396	26.36%
	Production	0.07	0.06	0.06	0.10	0.12	0.10	-	0.10	0.084	18.37%
	Mazandaran										
	Area	0.02	0.03	0.02	0.03	0.03	0.02	-	0.05	0.026	93.94%
	Yield	0.70	1.61	1.17	1.85	1.82	0.72	-	1.75	1.312	33.26%
	Production	0.02	0.05	0.03	0.05	0.06	0.01	-	0.09	0.034	158.45%
	Tehran										
	Area	0.03	0.03	0.04	0.04	0.04	0.04	-	0.04	0.040	3.67%
	Yield	2.89	3.50	3.78	3.96	4.01	3.69	-	4.24	3.637	16.67%
	Production	0.09	0.12	0.16	0.15	0.18	0.15	-	0.17	0.144	20.94%
	Ghom										
	Area	0.02	0.02	0.02	0.02	0.02	0.02	-	0.04	0.022	63.85%
	Yield	2.55	2.97	3.20	3.47	3.72	3.47	-	3.62	3.232	11.92%
	Production	0.05	0.07	0.07	0.08	0.07	0.07	-	0.13	0.070	83.38%
	Semnan										
	Area	0.01	0.02	0.02	0.02	0.02	0.01	-	0.02	0.017	-6.34%
	Yield	2.38	2.49	2.87	3.15	3.22	2.92	-	3.05	2.838	7.46%
	Production	0.04	0.04	0.05	0.06	0.05	0.04	-	0.05	0.047	0.65%
	Esfahan										
	Area	0.04	0.04	0.05	0.05	0.05	0.05	-	0.05	0.048	-1.91%
	Yield	3.14	3.24	3.56	3.49	3.78	3.41	-	3.20	3.436	-6.87%
	Production	0.13	0.11	0.17	0.18	0.19	0.19	-	0.15	0.166	-8.66%
	Yazd										
	Area	0.00	0.00	0.01	0.01	0.01	0.01	-	0.01	0.006	0.24%
	Yield	2.64	2.61	2.85	2.97	3.12	3.05	-	2.80	2.874	-2.48%
	Production	0.01	0.01	0.02	0.02	0.02	0.02	-	0.02	0.017	-2.24%
	CharMahal & Bakhtiari										
	Area	0.02	0.02	0.03	0.03	0.02	0.02	-	0.02	0.024	1.82%
	Yield	1.02	1.64	2.13	1.83	1.76	1.60	-	2.13	1.665	27.92%
	Production	0.03	0.04	0.06	0.05	0.04	0.03	-	0.05	0.039	30.25%
	Kohkiloyeh & Boyrahmad										
	Area	0.04	0.05	0.03	0.04	0.05	0.04	-	0.03	0.045	-24.33%
	Yield	0.71	1.17	1.78	1.50	1.05	1.07	-	0.80	1.212	-34.01%
	Production	0.03	0.06	0.06	0.07	0.05	0.04	-	0.03	0.054	-50.06%
	Boshehr										
	Area	0.00	0.02	0.03	0.02	0.03	0.03	-	0.03	0.026	3.05%
	Yield	0.31	0.28	0.67	0.28	0.48	0.57	-	0.50	0.433	15.56%
	Production	0.00	0.01	0.02	0.01	0.01	0.02	-	0.01	0.011	19.08%
	Fars										
	Area	0.05	0.10	0.14	0.12	0.13	0.14	-	0.05	0.125	-59.99%
	Yield	1.88	1.45	1.89	1.80	1.50	1.42	-	1.10	1.657	-33.63%
	Production	0.10	0.15	0.26	0.21	0.19	0.20	-	0.06	0.207	-73.45%
East	khorasan razavi										
	Area	0.17	0.21	0.25	0.25	0.24	0.19	-	0.18	0.228	-21.62%
	Yield	1.91	2.24	2.53	2.57	2.43	2.47	-	2.54	2.356	7.79%
	Production	0.32	0.47	0.64	0.65	0.59	0.46	-	0.45	0.538	-15.51%
	Kerman										
	Area	0.02	0.01	0.02	0.01	0.03	0.03	-	0.02	0.020	-11.42%
	Yield	1.62	1.99	2.24	1.94	2.19	2.29	-	1.93	2.046	-5.73%
	Production	0.03	0.02	0.03	0.03	0.06	0.07	-	0.03	0.041	-16.49%
	Sistan & Baloshesta										
	Area	0.00	0.00	0.01	0.01	0.01	0.02	-	0.01	0.010	12.38%
	Yield	1.47	1.74	1.42	1.67	1.71	1.40	-	1.49	1.570	-5.25%
	Production	0.01	0.01	0.01	0.01	0.01	0.03	-	0.02	0.016	6.47%
	Hormozgan										
	Area	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.002	10.86%
	Yield	1.17	1.59	1.14	0.95	1.22	1.22	-	1.24	1.214	1.96%
	Production	0.00	0.00	0.00	0.00	0.00	0.01	-	0.00	0.002	13.03%
	Total										
	Area	1.19	1.49	1.67	1.51	1.60	1.60	-	1.41	1.573	-10.59%
	Yield	1.41	1.63	1.85	1.93	1.84	1.71	-	1.86	1.791	4.01%
	Production (MMT)	1.69	2.42	3.08	2.91	2.94	2.73	-	2.62	2.818	-7.01%

Table 3. Provincial level Barley production estimates for MY 2009/10 compared against previous years.

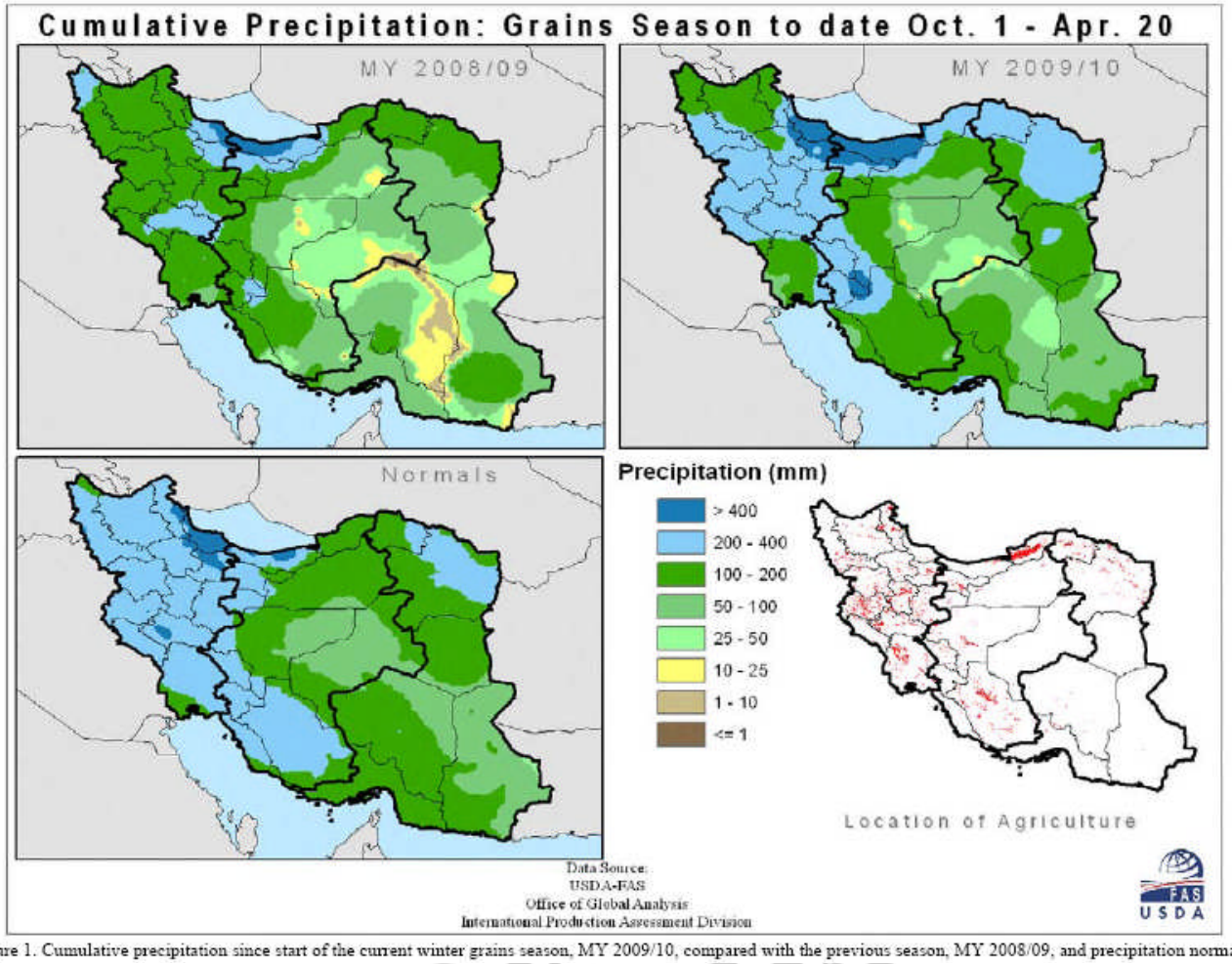

Figure 1. Cumulative precipitation since start of the current winter grains season, MY 2009/10, compared with the previous season, MY 2008/09, and precipitation normals.

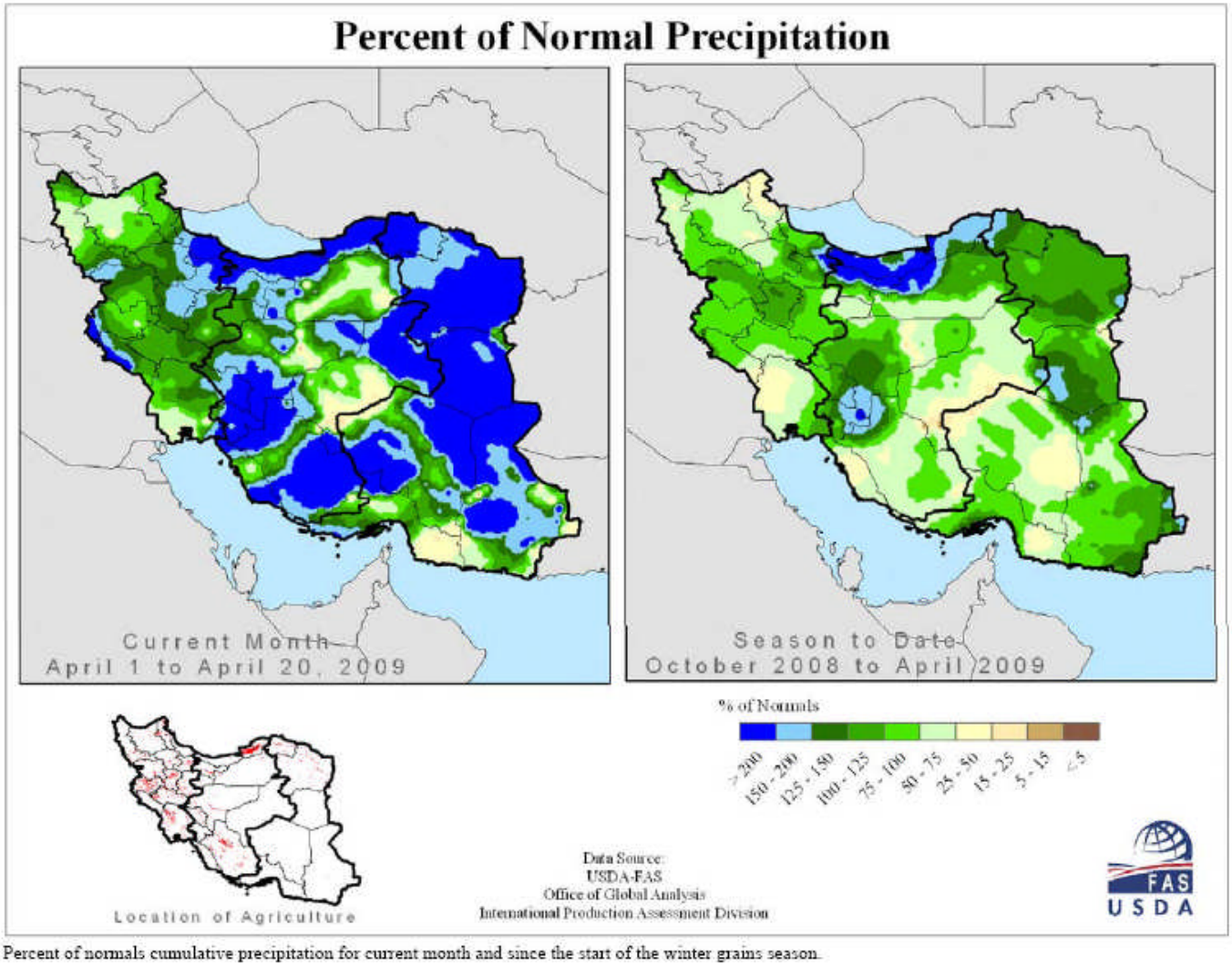

Figure 2. Percent of normals cumulative precipitation for current month and since the start of the winter grains season.

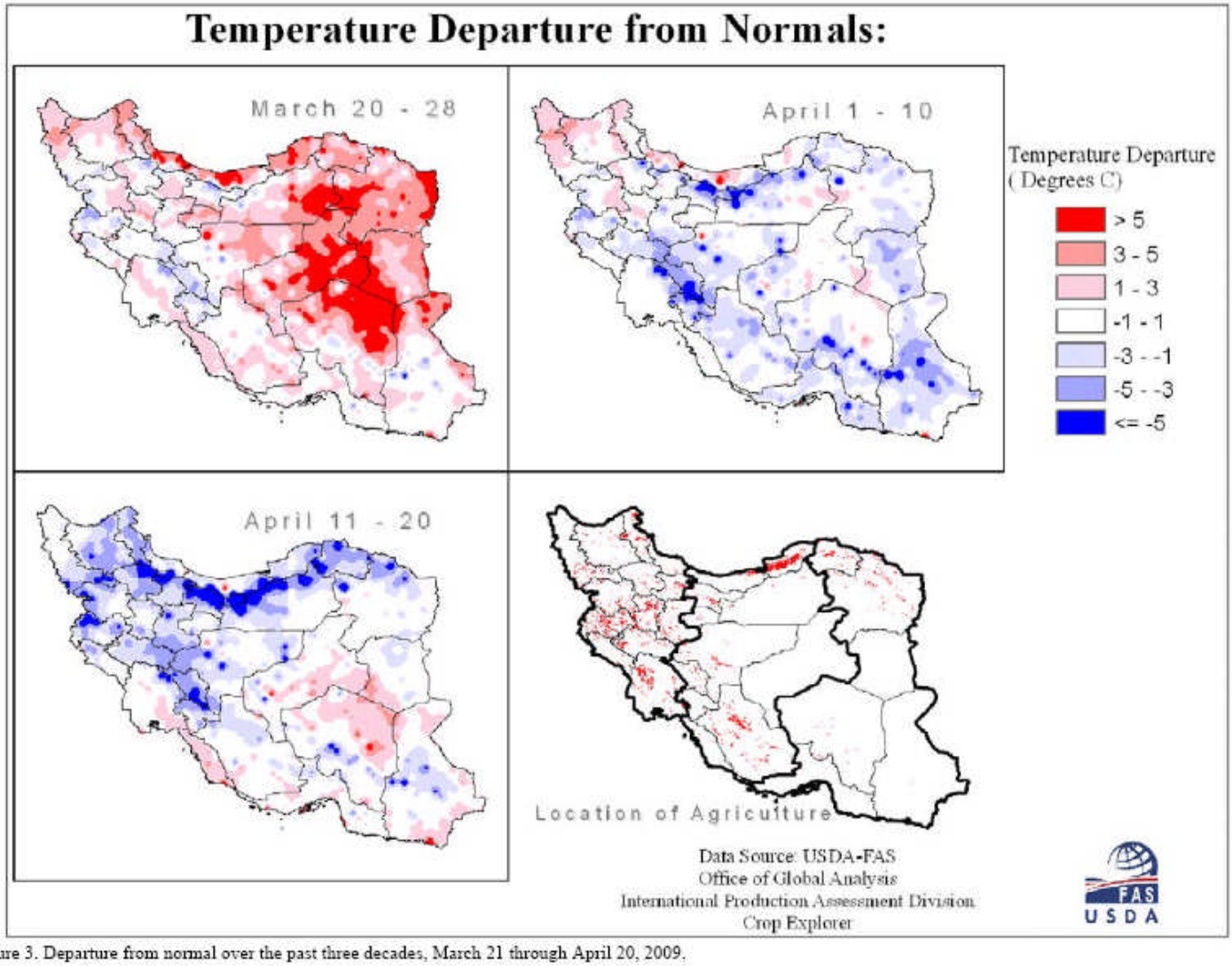

Figure 3. Departure from normal over the past three decades, March 21 through April 20, 2009.

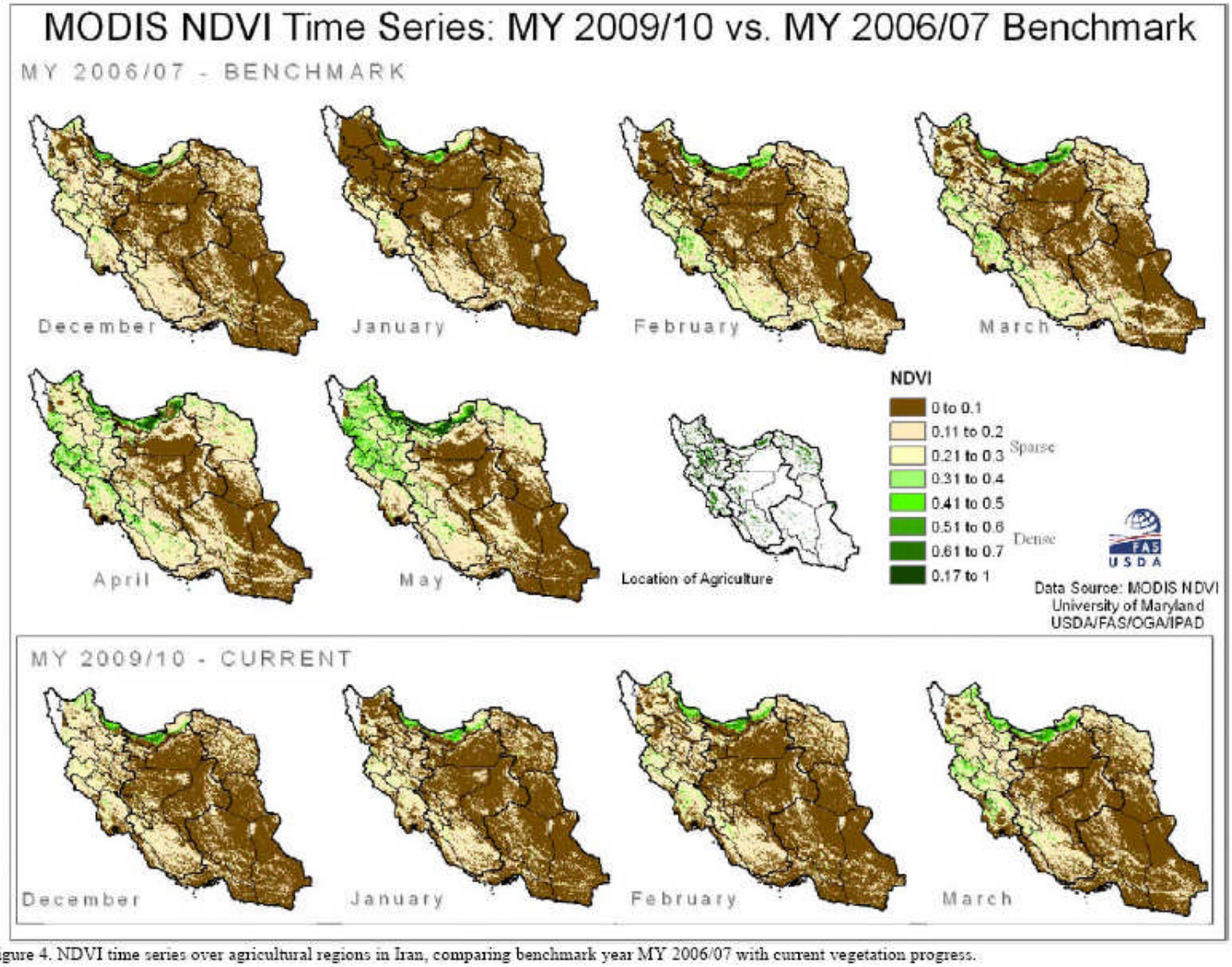

Figure 4. NDVI time series over agricultural regions in Iran, comparing benchmark year MY 2006/07 with current vegetation progress.

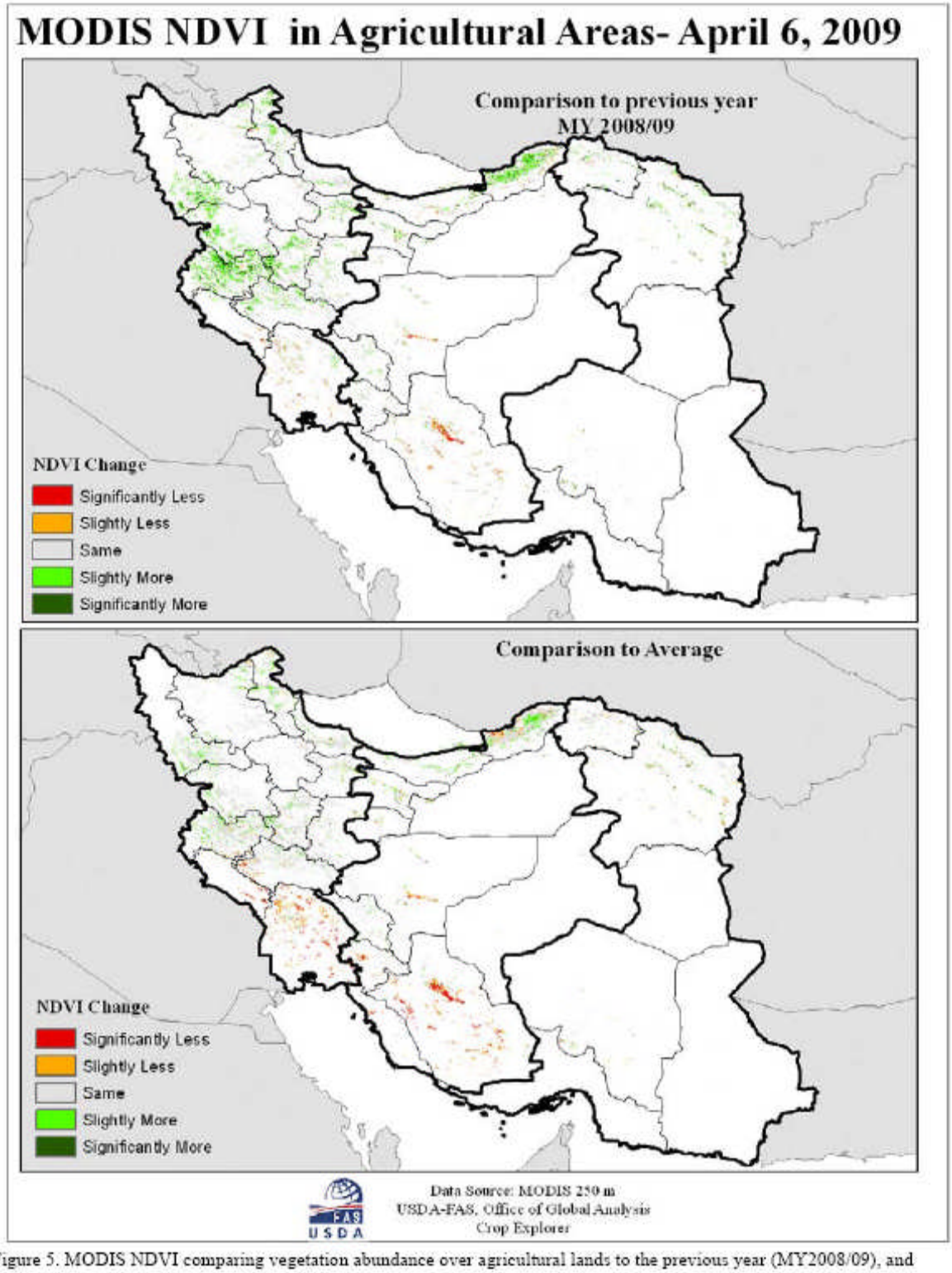

Figure 5. MODIS NDVI comparing vegetation abundance over agricultural lands to the previous year (MY2008/09), and comparing current vegetation abundance against an 8 year average.

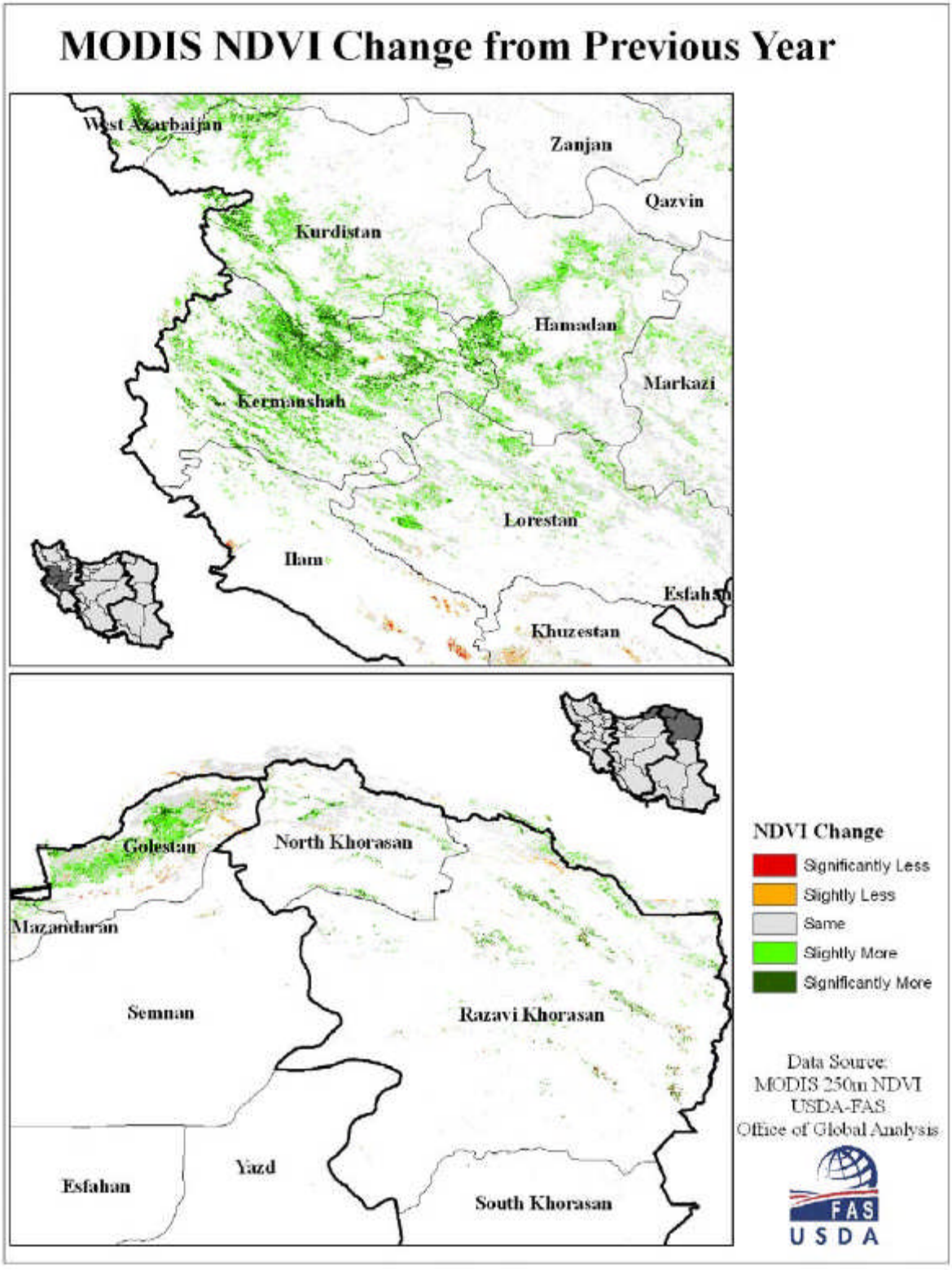

Figure 6. MODIS NDVI comparing vegetation abundance over agricultural lands to the previous year (MY2008/09) over the major grains provinces in then central northwest and northeast.

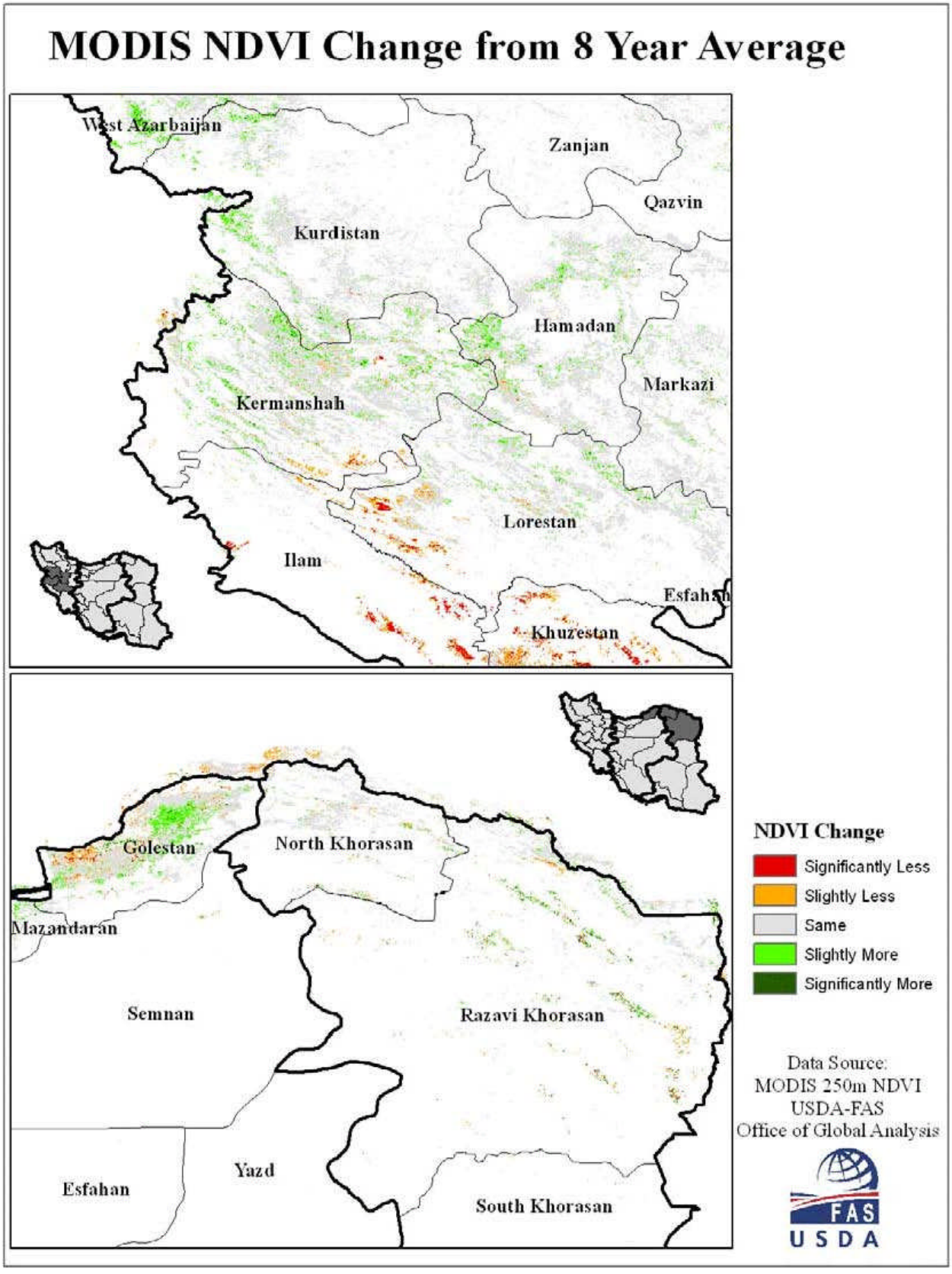

Figure 7. MODIS NDVI comparing vegetation abundance over agricultural lands to the 8 year average (MY2000/01 – MY2007/08) over the major grains provinces in then central northwest and northeast.

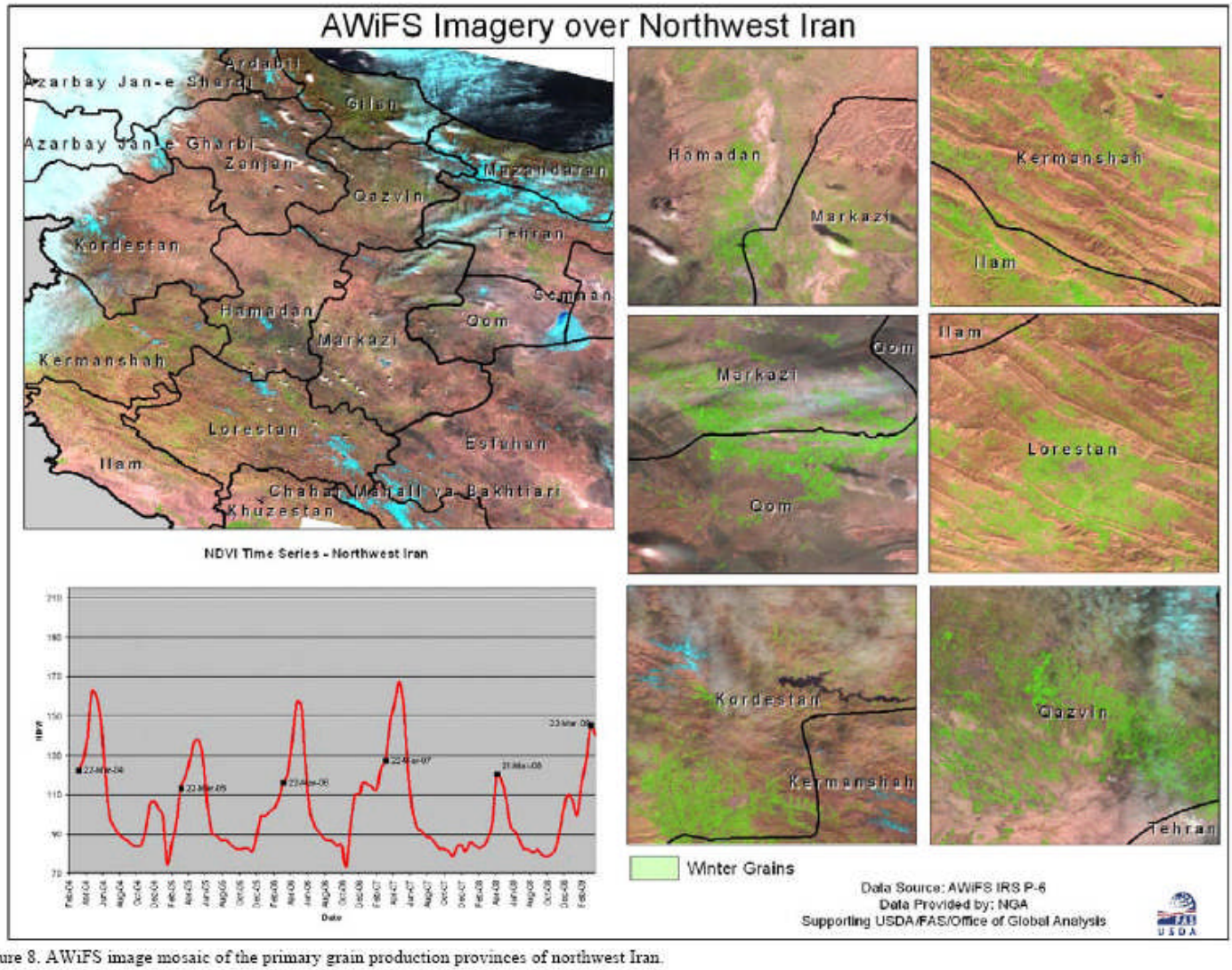

Figure 8. AWiFS image mosaic of the primary grain production provinces of northwest Iran.

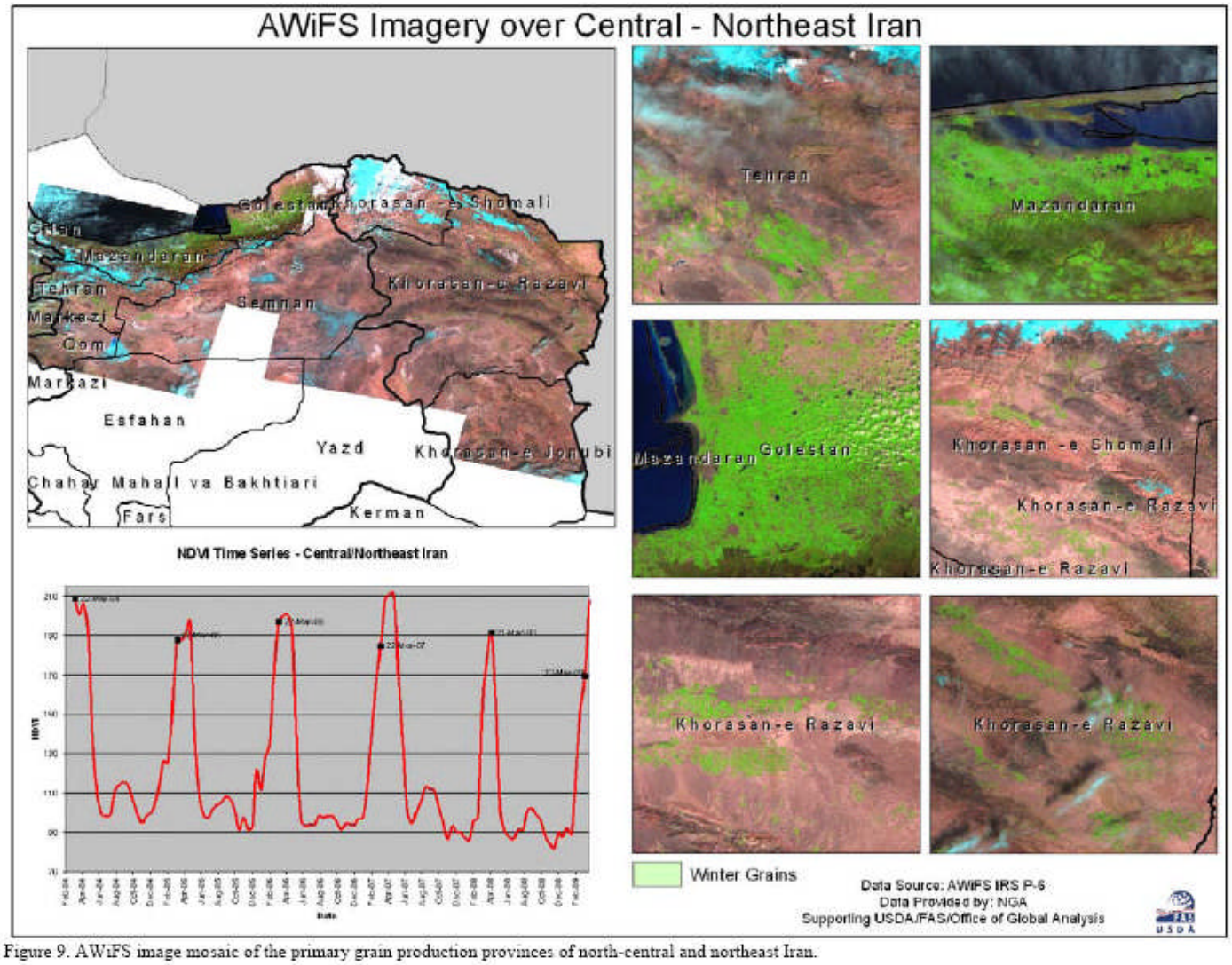

Figure 9. AWiFS image mosaic of the primary grain production provinces of north-central and northeast Iran.

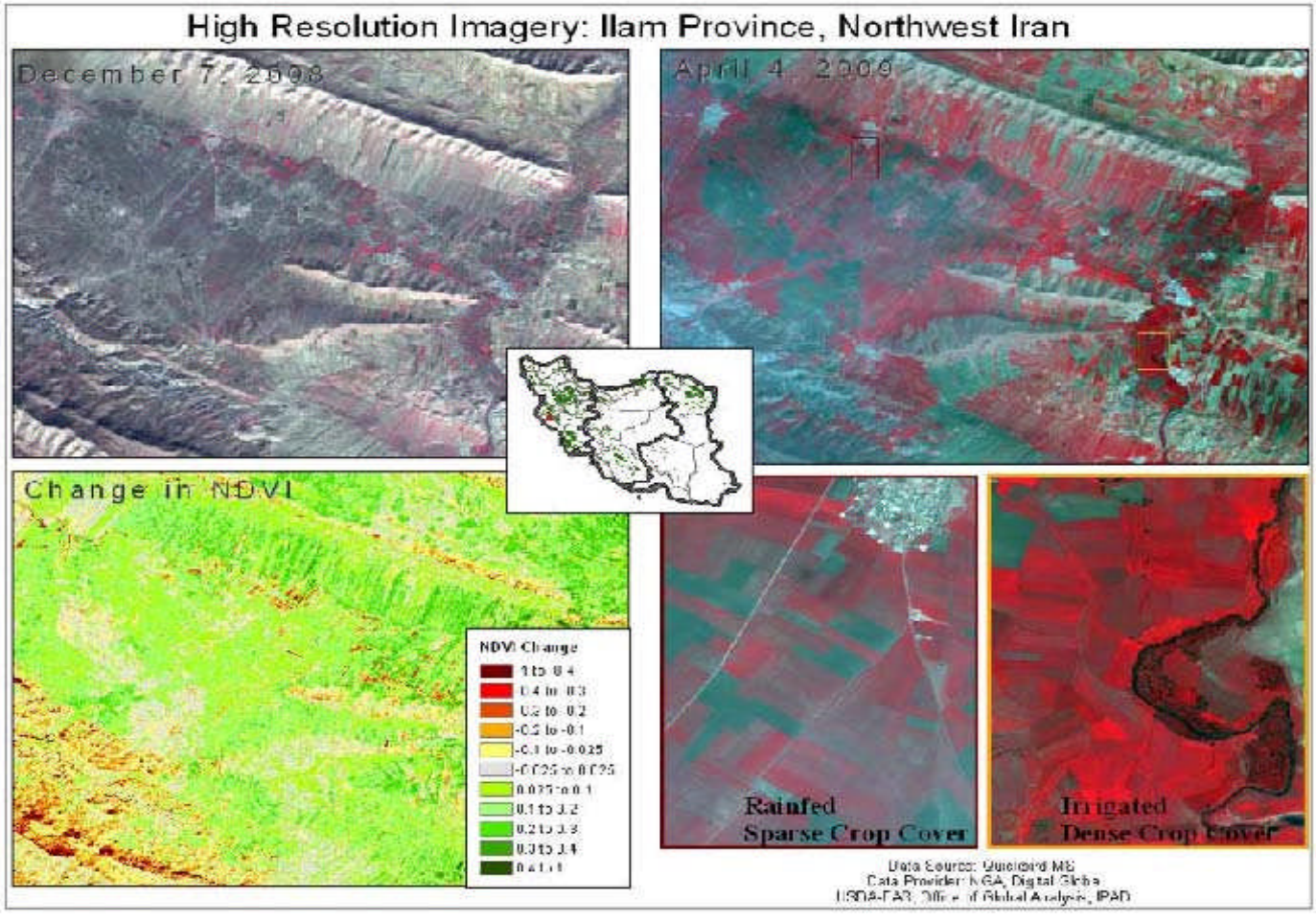

Figure 10. NDVI change from start of grains season (MY 2009/10) in Ilam province. There is a noticeable difference in crop canopy density between rainfed and irrigated fields, despite ample rainfall in the region.

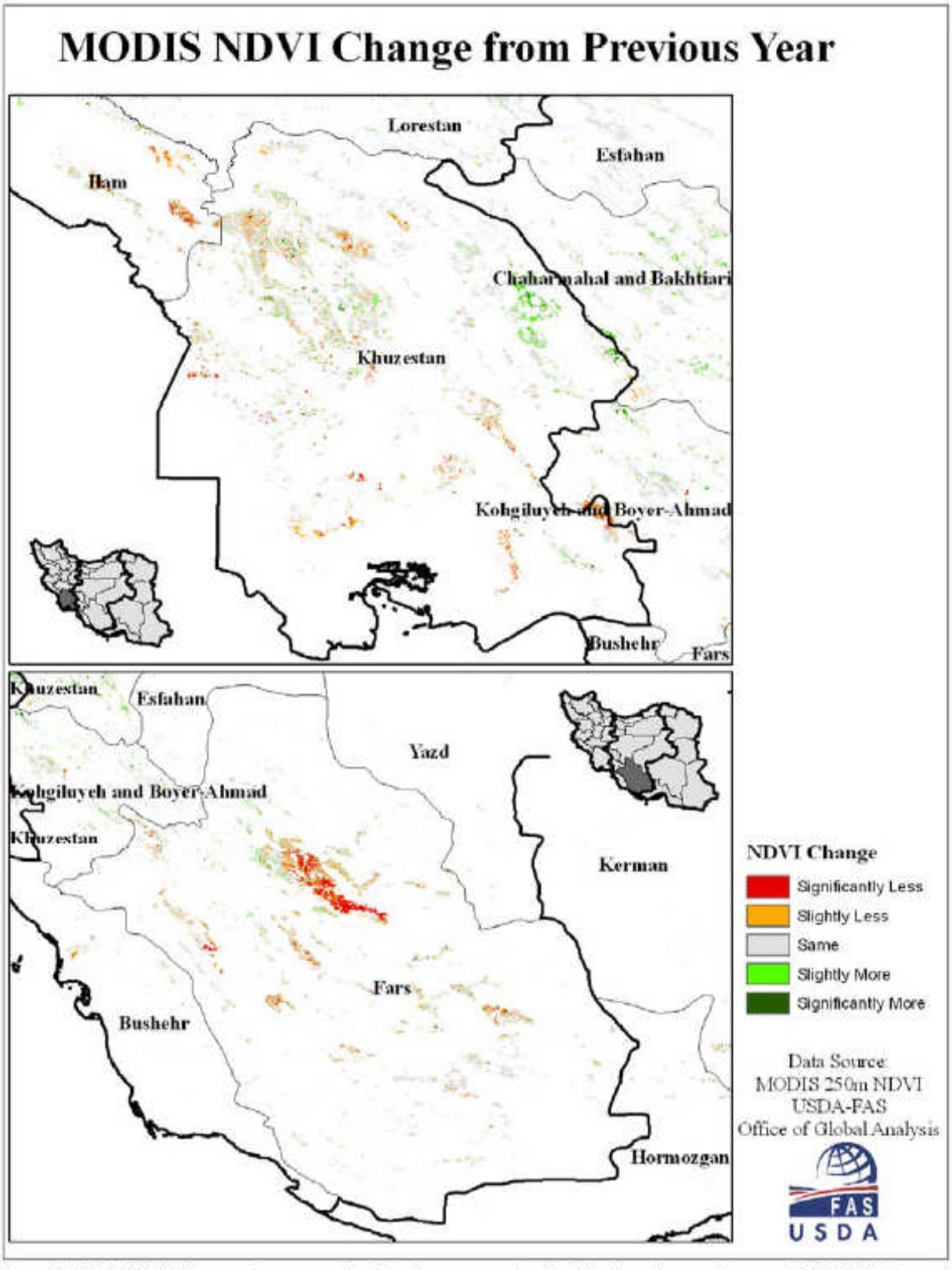

Figure 11. MODIS NDVI comparing vegetation abundance over agricultural lands to the previous year (MY2008/09) over the major irrigated grains provinces of Khuzestan and Fars.

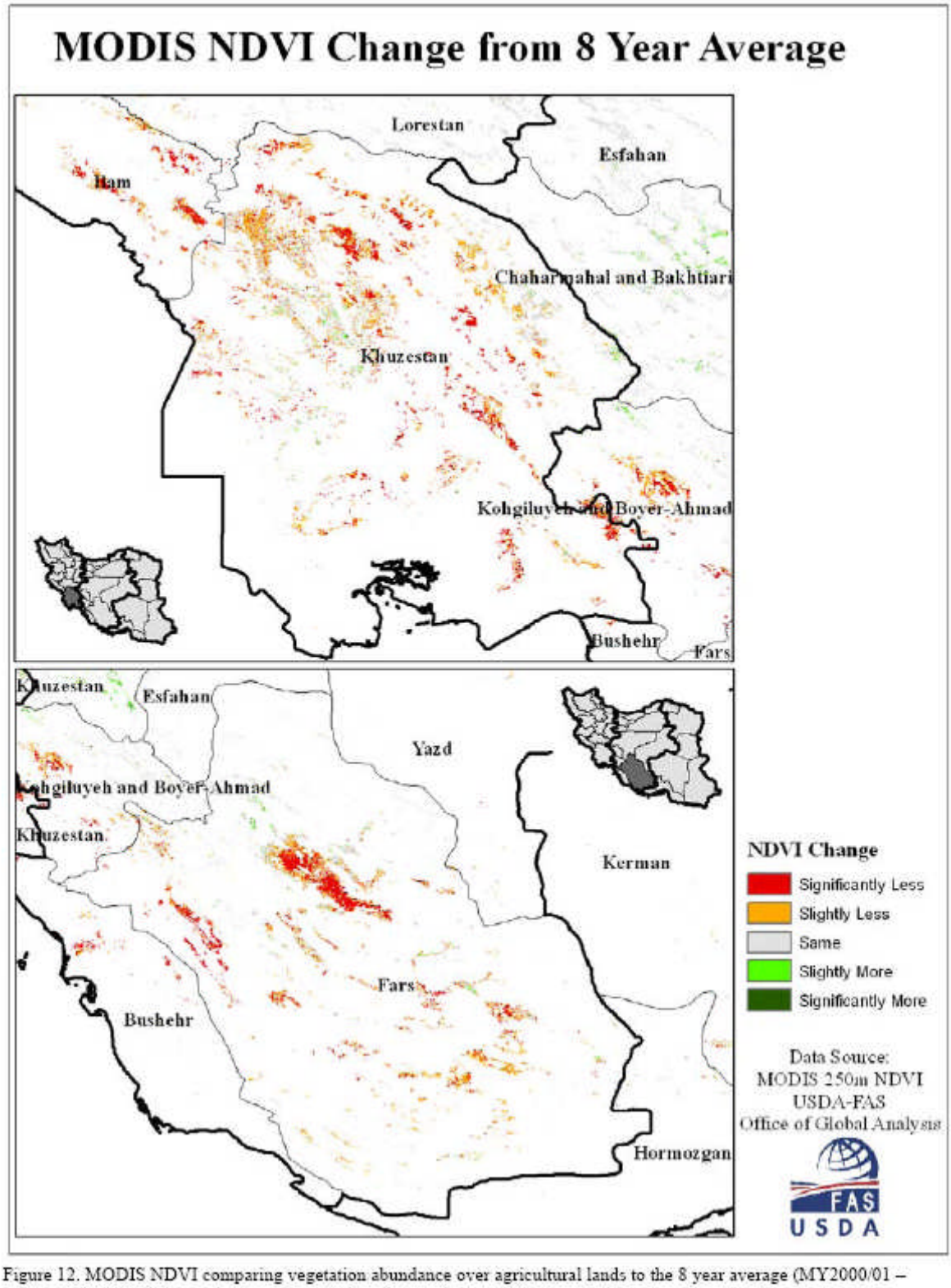

Figure 12. MODIS NDVI comparing vegetation abundance over agricultural lands to the 8 year average (MY2000/01 – MY2007/08) over the major irrigated grains provinces of Khuzestan and Fars.

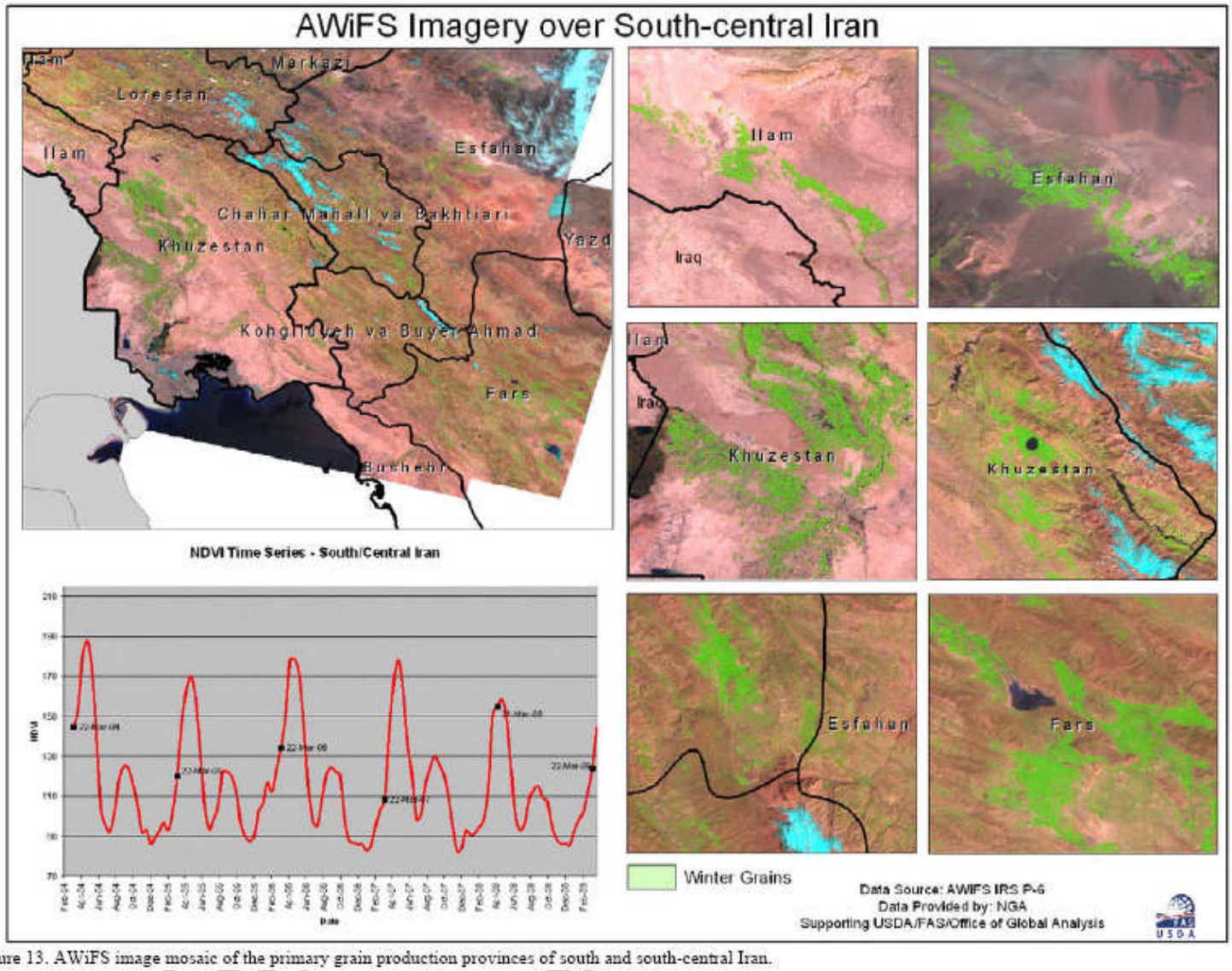

Figure 13. AWiFS image mosaic of the primary grain production provinces of south and south-central Iran.

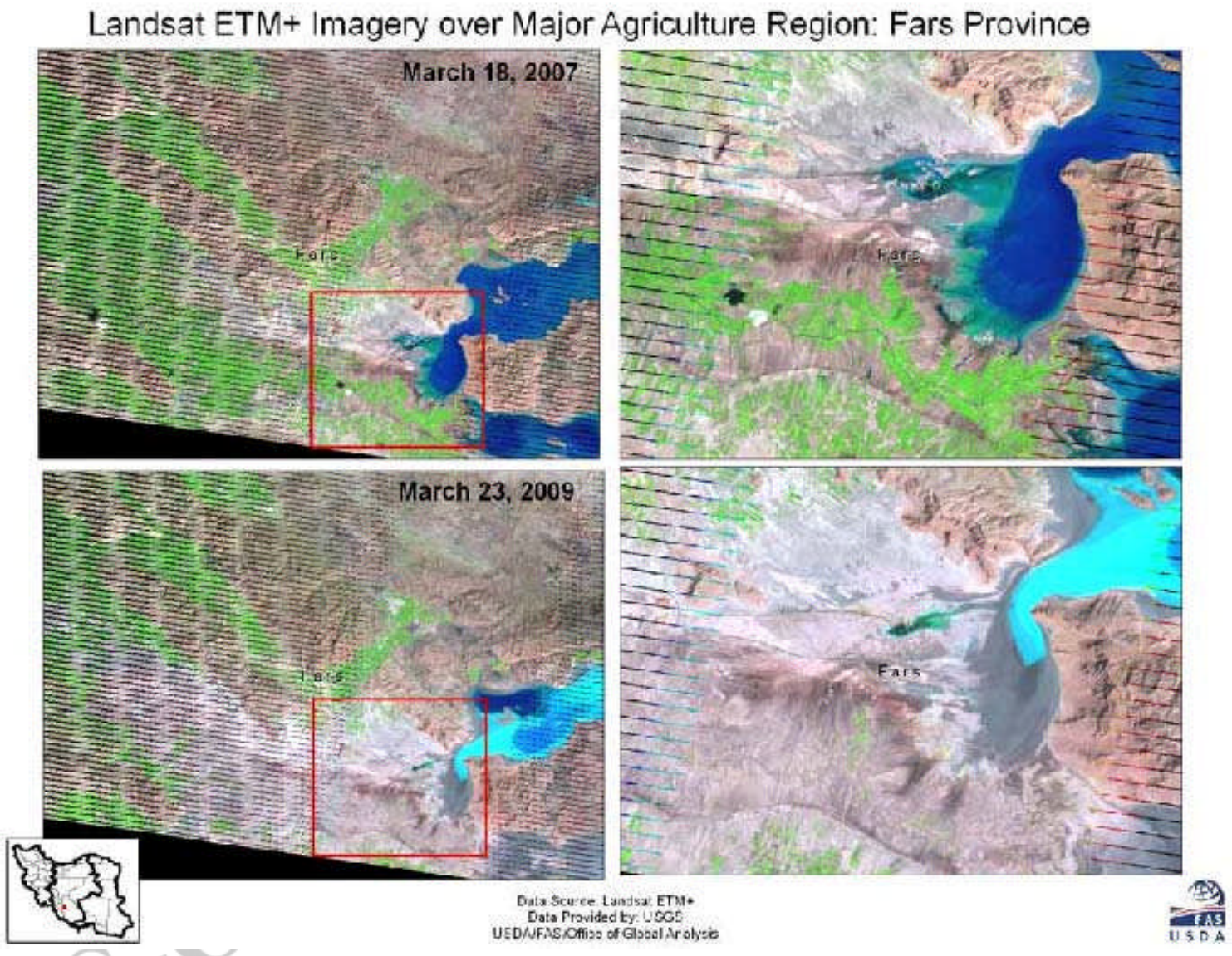

Figure 14. Landsat image comparison between current conditions MY 2009/10 and conditions from MY 2007/08 over the grain areas showing poorest agriculture performance in Fars province. * Note dropped line/ no data areas are due to sensor failure on the Landsat ETM+ instrument.

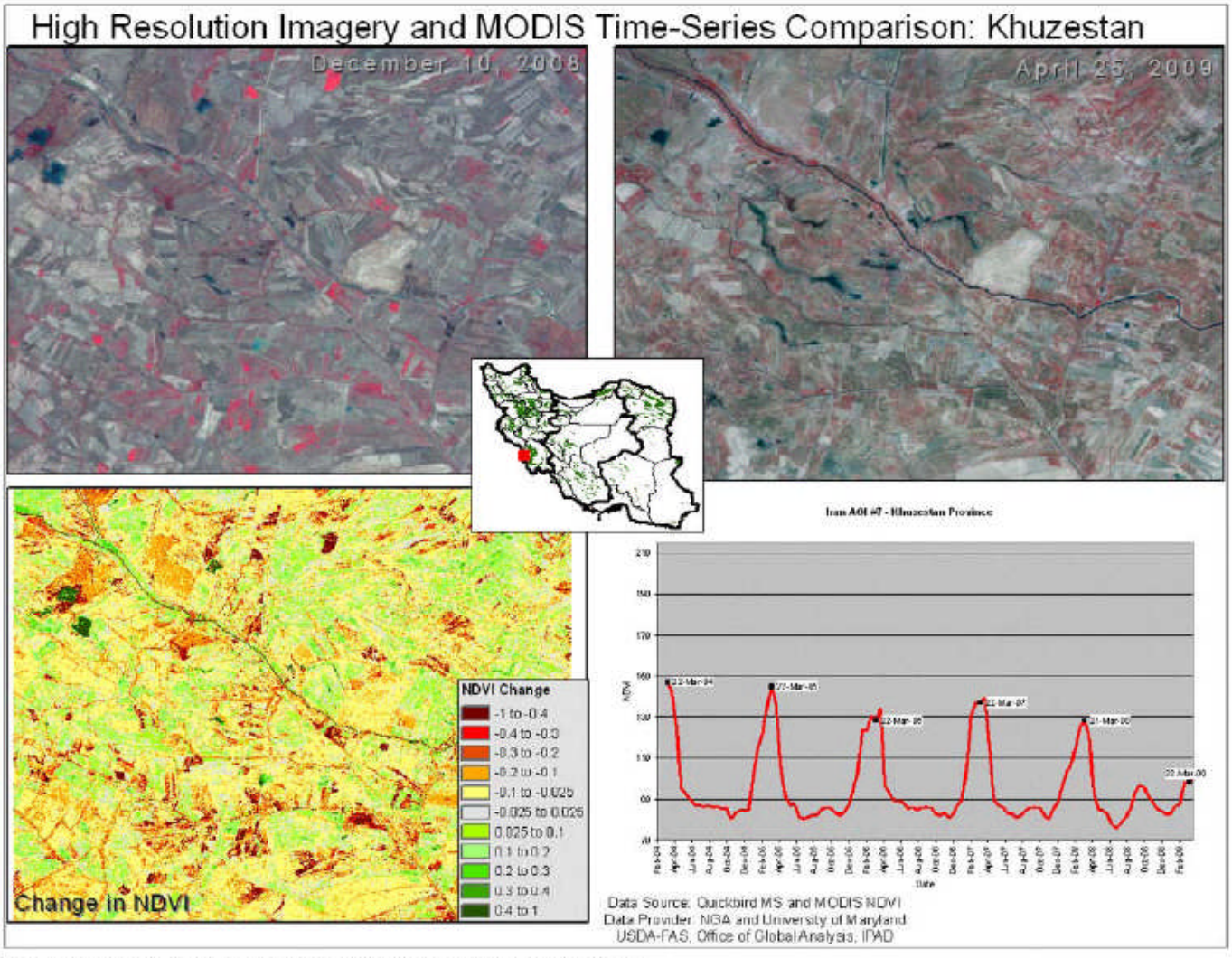

Figure 15. NDVI change from start of grains season (MY 2009/10) in Khuzestan province

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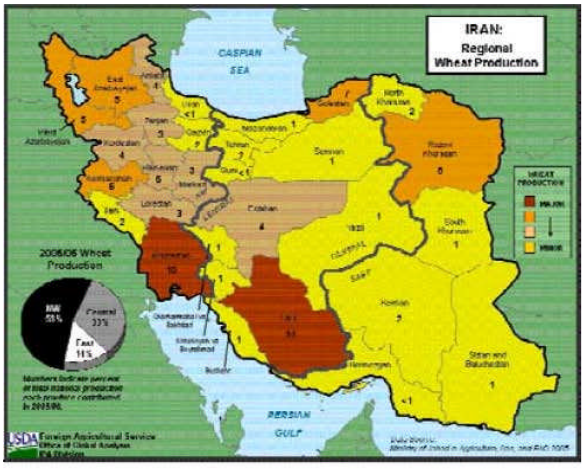
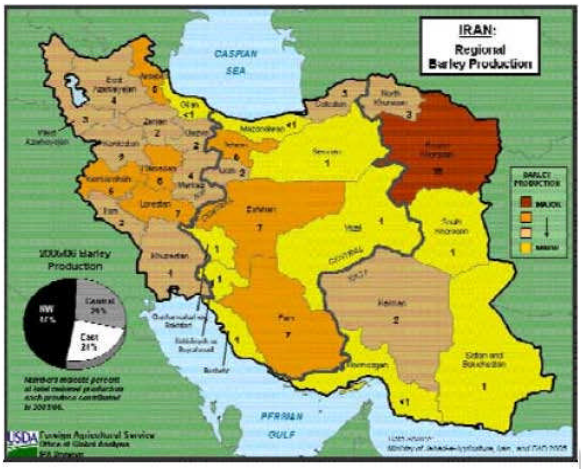
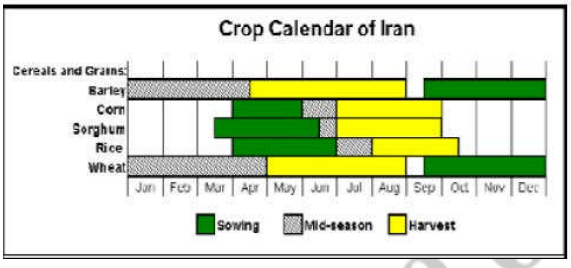
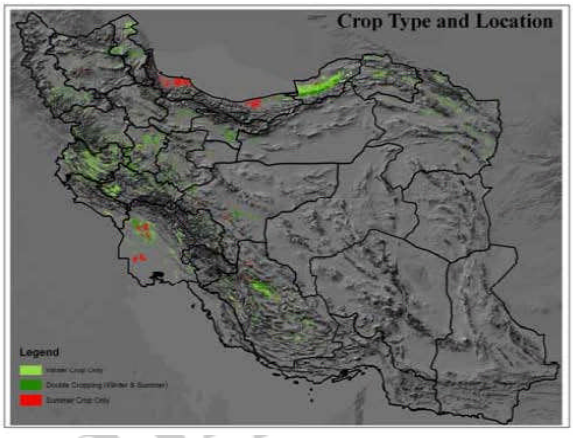
Appendix.









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